Robinson R22 Beta, G-ELFI

AAIB Bulletin No: 12/2001	**Ref: EW/G2001/10/05**	**Category: 2.3**
Aircraft Type and Registration:	Robinson R22 Beta, G-ELFI	
No & Type of Engines:	1 Lycoming O-320-B2C piston engine	
Year of Manufacture:	1989	
Date & Time (UTC):	10 October 2001 at 1420 hrs	
Location:	Shobdon Aerodrome, Hereford and Worcester	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Substantial	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	42 years	
Commander's Flying Experience:	5,500 hours (of which 4,300 were on type)	
	Last 90 days - 45 hours	
	Last 28 days - 20 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The weather was fine, with scattered clouds at 2,000 feet, temperature of 15° C and a south-westerly surface wind of 225/15 gusting to 25 kts. The helicopter was being flown on a training flight from Shobdon Airfield and the instructor had successfully demonstrated a practice autorotation from 800 feet agl, turning through 180° during the descent. The student pilot, the holder of a Private Pilots Licence (Helicopter), positioned the helicopter for a second practice autorotation and the instructor briefed that he would take control in the final stages of the manoeuvre to demonstrate the correct flare height. The student was briefed to 'follow through' on the controls during the instructor's demonstration.

The normal profile for a 180° turning autorotation from 800 feet agl involves maintaining the helicopter in a turn until about 80 to 100 feet agl, when the helicopter is rolled to a level attitude before flaring at about 40 feet agl. The student commenced the manoeuvre, which proceeded uneventfully until the instructor took over the controls with about 40 to 50° of the turn remaining.

The instructor started the flare just as he rolled the helicopter to the level attitude at an IAS of about 65 kt and rotor rpm of 102%, but the helicopter maintained its downward trajectory despite the application of aft cyclic pitch control. With insufficient time remaining to use the engine to arrest the descent, the helicopter continued to the ground, impacting heavily in a level attitude but with considerable forward speed. During the subsequent deceleration the helicopter rolled over and came to a halt on its right side. The instructor and student, who were both uninjured, made their exit through the broken front windscreen.

The instructor stated that the student had 'followed through' on the controls correctly and he considered the most likely cause of the accident to be windshear at the point at which the flare was commenced. During a subsequent examination of the helicopter no defect was found.